REMARKS

This amendment is in response to the Office Action dated November 28, 2008 (the "Office Action"). Claims 1-3, 6-8, 10-15, 17, 20-22, 24-29, 31 and 32 are pending. Claims 1, 12, 14 and 21 have been amended. No new matter has been added.

Claims 1-3, 6 and 7 are Allowable

The Office rejected claims 1-3, 6 and 7, under 35 U.S.C. 103(a), as being unpatentable over U.S. Pat. Publ. No. 2005/003853 ("Jones"), in view of U.S. Pat. Publ. No. 2004/0258028 ("Hossain"). Applicants respectfully traverse the rejections.

The cited portions of Jones and Hossain do not disclose or suggest the specific combination of claim 1. For example, the cited portions of the above-cited references fail to disclose or suggest "outputting from the router a PPPoE discovery stage packet that comprises a tag identifying the LAN side device", as in claim 1.

In contrast to claim 1, Jones describes identifying customer premises equipment (CPE) in a distributed network. See Jones, Abstract. CPEs are used to forward IP data along network paths and effect termination of point to point (PPP) connections. See Jones, paragraphs [0024] and [0025]. Nodes, such as source nodes and destination nodes, of the distributed network system are connected to the CPEs. See Jones, paragraphs [0023] and [0025]. A CPE device, which may be a router or a switch, contains a module configured to transmit a PPPoE packet that includes a tag to uniquely identify the CPE device. See Jones, paragraph [0028]. As shown in FIG. 2, a user's computer is connected to the CPE device. See Jones, FIG. 2. The system may acquire identification information of the CPE device that terminates a DSL connection at a subscriber residence for use in providing upgrades or product support. See Jones, paragraphs [0004] and [0005]. The CPE device of Jones corresponds to a router or switch and the PPPoE discovery packet output by the CPE device includes a tag identifying the CPE device, not a LAN side device. Therefore, the cited portions of Jones fail to disclose or suggest "outputting from the router a PPPoE discovery stage packet that comprises a tag identifying the LAN side device", as in claim 1.

In further contrast to claim 1, Hossain describes a communication system for translating signaling traffic PPPoE data frames into PPP over generic routing encapsulation data frames. See Hossain, Abstract and paragraph [0044]. In Hossain, a WLAN client 144, which corresponds to a LAN side device, sends a PPPoE discovery stage packet to an APC 142, which corresponds to a router. See Hossain, FIG. 2. As depicted in FIG. 3 of Hossain, the only PPPoE discovery stage packet (PADI) is sent from the WLAN client 144 to the APC 142. See Hossain, FIG. 3. The APC 142 does not output a PPPoE discovery stage packet. Therefore, the cited portions of Hossain fail to disclose or suggest "outputting from the router a PPPoE discovery stage packet that comprises a tag identifying the LAN side device" (emphasis added), as in claim 1.

Therefore, the cited portions of Jones and Hossain, individually or in combination, fail to disclose or suggest the specific combination of claim 1. Hence, claim 1 is allowable. Claims 2, 3, 6 and 7 are allowable, at least by virtue of their dependence from claim 1.

Claims 14, 15, 17 and 20 are Allowable

The Office rejected claims 14, 15, 17 and 20, under 35 U.S.C. 103(a), as being unpatentable over Jones, in view of Hossain, and further in view of U.S. Pat. Publ. No. 2004/0001496 ("Yusko"). Applicants respectfully traverse the rejections.

The cited portions of Jones, Hossain and Yusko do not disclose or suggest the specific combination of claim 14. For example, the cited portions of the above-cited references fail to disclose or suggest "a Local Area Network (LAN) engine communicatively coupled to the interface and configured to recognize an identification tag in a packet included in a discovery stage of the PPP session output by a router, the identification tag identifying a subscriber LAN device communicating the packet via the first of the plurality of remote devices", as in claim 14.

In contrast to claim 14, Jones describes identifying customer premises equipment (CPE) in a distributed network. See Jones, Abstract. CPEs are used to forward IP data along network paths and effect termination of point to point (PPP) connections. See Jones, paragraphs [0024] and [0025]. Nodes, such as source nodes and destination nodes, of the distributed network system are connected to the CPEs. See Jones, paragraphs [0023] and [0025]. A CPE device, which may be a router or a switch, contains a module configured to transmit a PPPoE packet that

includes a tag to uniquely identify the <u>CPE device</u>. See Jones, paragraph [0028]. As shown in FIG. 2, a user's computer is connected to the CPE device. See Jones, FIG. 2. The system may acquire identification information of the CPE device that terminates a DSL connection at a subscriber residence for use in providing upgrades or product support. See Jones, paragraphs [0004] and [0005]. The CPE device of Jones corresponds to a router or switch and the PPPoE discovery packet output by the CPE device includes a tag identifying the <u>CPE device</u>, not a <u>subscriber LAN device</u>. Therefore, the cited portions of Jones fail to disclose or suggest "a Local Area Network (LAN) engine communicatively coupled to the interface and configured to recognize an identification tag in a packet included in a discovery stage of the PPP session output by a router, the identification tag identifying a subscriber LAN device communicating the packet via the first of the plurality of remote devices", as in claim 14.

In further contrast to claim 14, Hossain describes a communication system for translating signaling traffic PPPoE data frames into PPP over generic routing encapsulation data frames. See Hossain, Abstract and paragraph [0044]. In Hossain, a WLAN client 144, which corresponds to a subscriber LAN device, sends a PPPoE discovery stage packet to an APC 142, which corresponds to a router. See Hossain, FIG. 2. As depicted in FIG. 3 of Hossain, the only PPPoE discovery stage packet (PADI) is sent from the WLAN client 144 to the APC 142, and the APC 142 does not output a PPPoE discovery stage packet. Therefore, the cited portions of Hossain fail to disclose or suggest "a Local Area Network (LAN) engine communicatively coupled to the interface and configured to recognize an identification tag in a packet included in a discovery stage of the PPP session <u>output by a router</u>, the identification tag identifying a subscriber LAN device communicating the packet via the first of the plurality of remote devices" (emphasis added), as in claim 14.

In further contrast to claim 14, Yusko describes establishing an automatic physical connection between a CPE and the access concentrator upon receipt of certain packets from the network device. See Yusko, paragraphs [0026]-[0028]. The cited portions of Yusko describe establishing PPP sessions, but fail to disclose or suggest an identification tag in a packet included in a discovery stage of the PPP session output by a router, where the identification tag identifies a subscriber LAN device. Therefore, the cited portions of Yusko fail to disclose or suggest "a Local Area Network (LAN) engine communicatively coupled to the interface and configured to

recognize an identification tag in a packet included in a discovery stage of the PPP session output by a router, the identification tag identifying a subscriber LAN device communicating the packet via the first of the plurality of remote devices", as in claim 14.

Therefore, the cited portions of Jones, Hossain and Yusko, individually or in combination, fail to disclose or suggest the specific combination of claim 14. Hence, claim 14 is allowable. Claims 15, 17 and 20 are allowable, at least by virtue of their dependence from claim 14.

Claims 21, 22, 24, 29, 31 and 32 are Allowable

The Office rejected claims 21, 22, 24, 29, 31 and 32, under 35 U.S.C. 103(a), as being unpatentable over Jones, in view of Hossain, in view of Yusko and further in view of U.S. Pat. Publ. No. 2003/0236916 ("Adcox"). Applicants respectfully traverse the rejections.

The cited portions of Jones, Hossain, Yusko, and Adcox do not disclose or suggest the specific combination of claim 21. For example, the cited portions of the above-cited references fail to disclose or suggest "receiving a PPPoE packet from a router of a remote node at an access concentrator, wherein the PPPoE packet comprises a tag including information associated with a device communicating via the remote node", as in claim 21.

In contrast to claim 21, Jones describes identifying customer premises equipment (CPE) in a distributed network. See Jones, Abstract. CPEs are used to forward IP data along network paths and effect termination of point to point (PPP) connections. See Jones, paragraphs [0024] and [0025]. Nodes, such as source nodes and destination nodes, of the distributed network system are connected to the CPEs. See Jones, paragraphs [0023] and [0025]. A CPE device, which may be a router or a switch, contains a module configured to transmit a PPPoE packet that includes a tag to uniquely identify the <u>CPE device</u>. See Jones, paragraph [0028]. As shown in FIG. 2, a user's computer is connected to the CPE device. See Jones, FIG. 2. The system may acquire identification information of the CPE device that terminates a DSL connection at a subscriber residence for use in providing upgrades or product support. See Jones, paragraphs [0004] and [0005]. The CPE device of Jones corresponds to a router or switch and the PPPoE discovery packet output by the CPE device includes a tag identifying the <u>CPE device</u>, not a <u>device communicating via the remote node</u>. Therefore, the cited portions of Jones fail to

disclose or suggest "receiving a PPPoE packet from a router of a remote node at an access concentrator, wherein the PPPoE packet comprises a tag including information associated with a device communicating via the remote node", as in claim 21.

In further contrast to claim 21, Hossain describes a communication system for translating signaling traffic PPPoE data frames into PPP over generic routing encapsulation data frames. See Hossain, Abstract and paragraph [0044]. In Hossain, a WLAN client 144, which corresponds to a device communicating via the remote node, sends a PPPoE discovery stage packet to an APC 142, which corresponds to a router. See Hossain, FIG. 2. As depicted in FIG. 3 of Hossain, the APC 142 sends the PPPoE packet to the <u>WLAN client</u>. See Hossain, FIG. 3. The PPPoE packet is not sent to an <u>access concentrator</u>. Therefore, the cited portions of Hossain fail to disclose or suggest "receiving a PPPoE packet from a router of a remote node at an access concentrator, wherein the PPPoE packet comprises a tag including information associated with a device communicating via the remote node", as in claim 21.

In further contrast to claim 21, Yusko describes establishing an automatic physical connection between a CPE and an access concentrator upon receipt of certain packets from a network device. See Yusko, paragraphs [0026]-[0028]. The cited portions of Yusko describe establishing PPP sessions, but fail to disclose or suggest a PPPoE packet that includes a tag with information associated with a device communicating via the remote node. Therefore, the cited portions of Yusko fail to disclose or suggest "receiving a PPPoE packet from a router of a remote node at an access concentrator, wherein the PPPoE packet comprises a tag including information associated with a device communicating via the remote node", as in claim 21.

In further contrast to claim 21, Adcox describes a media access control (MAC) translation system that includes a home network unit (HNU) that upon receiving an outgoing transmission from a host, accesses a MAC address table to determine a secondary MAC layer address. See Adcox, paragraph [0004]. The HNU maintains a constant Ethernet connection, and subscriber PPPoE software on a subscriber's computer interprets this connection as a standard dial-up connection when accessing an ISP. See Adcox, paragraph [0058]. The cited portions of Adcox fail to disclose or suggest a device that is identified as the device communicating via the remote node. Therefore, the cited portions of Adcox fail to disclose or suggest "receiving a PPPoE packet from a router of a remote node at an access concentrator, wherein the PPPoE

packet comprises a tag including information associated with a device communicating via the remote node", as in claim 21.

Therefore, the cited portions of Jones, Hossain, Yusko and Adcox, individually or in combination, fail to disclose or suggest the specific combination of claim 21. Hence, claim 21 is allowable. Claims 22, 24, 29, 31 and 32 are allowable, at least by virtue of their dependence from claim 21.

Claims 8 and 12 are Allowable

The Office rejected claims 8 and 12, under 35 U.S.C. 103(a), as being unpatentable over Jones, in view of Hossain, and further in view of U.S. Pat. Publ. No. 2005/0166261 ("Kortum"). Applicants respectfully traverse the rejections.

Claims 8 and 12 depend from claim 1. As explained above, the cited portions of Jones and Hossain fail to disclose or suggest at least one element of claim 1. The cited portions of Kortum fail to disclose or suggest the elements of claim 1 not disclosed or suggested by the cited portions of Jones and Hossain. For example, the cited portions of Kortum fail to disclose or suggest "outputting from the router a PPPoE discovery stage packet that comprises a tag identifying the LAN side device", as in claim 1. In contrast to claim 1, Kortum describes a system in which a user may employ a cable modem, an xDSL modem, or a different device capable of supporting execution of a PPPoE client. See Kortum, paragraph [0013]. A network access request may be received to acquire specific information such as unique circuit identification number for an xDSL line, or a virtual path/virtual circuit identification associated with xDSL routing and/or some other information capable of uniquely identifying a requestor. See Kortum, paragraph [0015]. The cited portions of Kortum fail to disclose or suggest a PPPoE discovery stage packet that comprises a tag identifying a LAN side device. Therefore, the cited portions of Jones, Hossain and Kortum fail to disclose or suggest at least one element of claim 1, from which claims 8 and 12 depend. Hence, claims 8 and 12 are allowable.

Claim 10 is Allowable

The Office rejected claim 10, under 35 U.S.C. 103(a), as being unpatentable over Jones, in view of Hossain, and further in view of U.S. Pat. Publ. No. 2004/0004968 ("Nassar"). Applicants respectfully traverse the rejection.

Claim 10 depends from claim 1. As explained above, the cited portions of Jones and Hossain fail to disclose or suggest at least one element of claim 1. The cited portions of Nassar fail to disclose or suggest the elements of claim 1 not disclosed or suggested by the cited portions of Jones and Hossain. For example, the cited portions of Nassar fail to disclose or suggest "outputting from the router a PPPoE discovery stage packet that comprises a tag identifying the LAN side device", as in claim 1. In contrast to claim 1, Nassar describes a policy that enables a subscriber to connect to multiple service providers simultaneously using a network address translation technique. See Nassar, Abstract, FIG. 13 and paragraph [0059]. The cited portions of Nassar fail to disclose or suggest a PPPoE discovery stage packet that comprises a tag identifying a LAN side device. Therefore, the cited portions of Jones, Hossain and Nassar fail to disclose or suggest at least one element of claim 1, from which claim 10 depends. Hence, claim 10 is allowable.

Claim 11 is Allowable

The Office rejected claim 11, under 35 U.S.C. 103(a), as being unpatentable over Jones, in view of Hossain, and further in view of U.S. Pat. Publ. No. 2004/0059821 ("Tang"). Applicants respectfully traverse the rejection.

Claim 11 depends from claim 1. As explained above, the cited portions of Jones and Hossain fail to disclose or suggest at least one element of claim 1. The cited portions of Tang fail to disclose or suggest the elements of claim 1 not disclosed or suggested by the cited portions of Jones and Hossain. For example, the cited portions of Tang fail to disclose or suggest "outputting from the router a PPPoE discovery stage packet that comprises a tag identifying the LAN side device", as in claim 1. In contrast to claim 1, Tang describes providing a PPP-Bridge operating mode in a data communication system. Various user terminals are in communication with an access device that is in turn in communication with a remote server. See Tang, Abstract, paragraph [0064] and FIG. 1. The cited portions of Tang fail to disclose or suggest a PPPoE discovery stage packet that comprises a tag identifying a LAN side device. Therefore, the cited portions of Jones, Hossain and Tang fail to disclose or suggest at least one element of claim 1, from which claim 11 depends. Hence, claim 11 is allowable.

Claim 13 is Allowable

The Office rejected claim 13, under 35 U.S.C. 103(a), as being unpatentable over Jones, in view of Hossain, in view of Yusko and further in view of Kortum. Applicants respectfully traverse the rejection.

Claim 13 depends from claim 1. As explained above, the cited portions of Jones and Hossain fail to disclose or suggest at least one element of claim 1. The cited portions of Yusko and Kortum fail to disclose or suggest the elements of claim 1 not disclosed or suggested by the cited portions of Jones and Hossain. For example, the cited portions of Yusko and Kortum fail to disclose or suggest "outputting from the router a PPPoE discovery stage packet that comprises a tag identifying the LAN side device", as in claim 1.

In contrast to claim 1, Yusko describes establishing an automatic physical connection between a CPE and the access concentrator upon receipt of certain packets from a network device. See Yusko, paragraphs [0026]-[0028]. The cited portions of Yusko describe establishing PPP sessions, but fail to disclose or suggest a PPPoE discovery stage packet that comprises a tag identifying the LAN device.

In further contract to claim 1, Kortum describes a system in which a user may employ a cable modem, an xDSL modem, or a different device capable of supporting execution of a PPPoE client. See Kortum, paragraph [0013]. A network access request may be received to acquire specific information such as unique circuit identification number for an xDSL line, or a virtual path/virtual circuit identification associated with xDSL routing and/or some other information capable of uniquely identifying a requestor. See Kortum, paragraph [0015]. The cited portions of Kortum fail to disclose or suggest a PPPoE discovery stage packet that comprises a tag identifying the LAN side device.

Therefore, the cited portions of Jones, Hossain, Yusko and Kortum fail to disclose or suggest at least one element of claim 1, from which claim 13 depends. Hence, claim 13 is allowable.

Claim 25 is Allowable

The Office rejected claim 25, under 35 U.S.C. 103(a), as being unpatentable over Jones, in view of Hossain, in view of Adcox and further in view of U.S. Pat. Publ. No. 2007/0159971 ("Zhang"). Applicants respectfully traverse the rejection.

Claim 25 depends from claim 21. As explained above, the cited portions of Jones, Hossain and Adcox fail to disclose or suggest at least one element of claim 21. The cited portions of Zhang fail to disclose or suggest the elements of claim 21 not disclosed or suggested by the cited portions of Jones, Hossain and Adcox. For example, the cited portions of Zhang fail to disclose or suggest "receiving a PPPoE packet from a router of a remote node at an access concentrator, wherein the PPPoE packet comprises a tag including information associated with a device communicating via the remote node", as in claim 21. In contrast to claim 21, Zhang describes a high capacity communication system for broadband access. See Zhang, Abstract, FIG. 2, and paragraph [0042]. The cited portions of Zhang fail to disclose or suggest a PPPoE packet that comprises a tag including information associated with a device communicating via the remote node. Therefore, the cited portions of Jones, Hossain, Adcox and Zhang fail to disclose or suggest at least one element of claim 21, from which claim 25 depends. Hence, claim 25 is allowable.

Claim 26 is Allowable

The Office rejected claim 26, under 35 U.S.C. 103(a), as being unpatentable over Jones, in view of Hossain, in view of Adcox and further in view of U.S. Pat. Publ. No. 2005/0015494 ("Adamczyk"). Applicants respectfully traverse the rejection.

Claim 26 depends from claim 21. As explained above, the cited portions of Jones, Hossain and Adcox fail to disclose or suggest at least one element of claim 21. The cited portions of Adamczyk fail to disclose or suggest the elements of claim 21 not disclosed or suggested by the cited portions of Jones, Hossain and Adcox. For example, the cited portions of Adamczyk fail to disclose or suggest "receiving a PPPoE packet from a router of a remote node at an access concentrator, wherein the PPPoE packet comprises a tag including information associated with a device communicating via the remote node", as in claim 21. In contrast to claim 21, Adamczyk describes a data architecture for communication networks that seeks to

provide the establishment of priorities in bandwidth allocation among multiple service providers and applications in order to customize content delivery according to user and provider preferences. See Adamczyk, paragraph[0007] and FIG. 3. The cited portions of Adamczyk fail to disclose or suggest a PPPoE packet that comprises a tag including information associated with a device communicating via the remote node. Therefore, the cited portions of Jones, Hossain, Adcox and Adamczyk fail to disclose or suggest at least one element of claim 21, from which claim 26 depends. Hence, claim 26 is allowable.

Claim 27 is Allowable

The Office rejected claim 27, under 35 U.S.C. 103(a), as being unpatentable over Jones, in view of Hossain, in view of Adcox and further in view of U.S. Pat. Publ. No. 2004/0044789 ("Angel"). Applicants respectfully traverse the rejection.

Claim 27 depends from claim 21. As explained above, the cited portions of Jones, Hossain and Adcox fail to disclose or suggest at least one element of claim 21. The cited portions of Angel fail to disclose or suggest the elements of claim 21 not disclosed or suggested by the cited portions of Jones, Hossain and Adcox. For example, the cited portions of Angel fail to disclose or suggest "receiving a PPPoE packet from a router of a remote node at an access concentrator, wherein the PPPoE packet comprises a tag including information associated with a device communicating via the remote node", as in claim 21. In contrast to claim 21, Angel describes the provision of a dynamically variable quality of service across Internet access/transport networks. See Angel, paragraph [0002]. Quality of service enforcement is provided in order to control user bandwidth consumption and to perform network planning and engineering. See Angel, paragraph [0100]. The cited portions of Angel fail to disclose or suggest a PPPoE packet that comprises a tag including information associated with a device communicating via the remote node. Therefore, the cited portions of Jones, Hossain, Adcox and Angel fail to disclose or suggest at least one element of claim 21, from which claim 27 depends. Hence, claim 27 is allowable.

Claim 28 is Allowable

The Office rejected claim 28, under 35 U.S.C. 103(a), as being unpatentable over Jones, in view of Hossain, in view of Adcox and further in view of U.S. Pat. Publ. No. 2005/0258028 ("Pedersen"). Applicants respectfully traverse the rejection.

Claim 28 depends from claim 21. As explained above, the cited portions of Jones, Hossain and Adcox fail to disclose or suggest at least one element of claim 21. The cited portions of Pedersen fail to disclose or suggest the elements of claim 21 not disclosed or suggested by the cited portions of Jones, Hossain and Adcox. For example, the cited portions of Pedersen fail to disclose or suggest "receiving a PPPoE packet from a router of a remote node at an access concentrator, wherein the PPPoE packet comprises a tag including information associated with a device communicating via the remote node", as in claim 21. In contrast to claim 21, Pedersen describes a system for testing the link between an end user and a broadband network. See Pedersen, paragraph [0001]. A first node, second node, and intermediate node are provided in which the intermediate node sends a loop-back test message to the first end node according to a standard of the first transmission medium. See Pedersen [0007]. The cited portions of Pedersen fail to disclose or suggest a PPPoE packet that comprises a tag including information associated with a device communicating via the remote node. Therefore, the cited portions of Jones, Hossain, Adcox and Pedersen fail to disclose or suggest at least one element of claim 21, from which claim 28 depends. Hence, claim 28 is allowable.

CONCLUSION

Applicants have pointed out specific features of the claims not disclosed, suggested, or rendered obvious by the cited portions of the above-cited references as applied in the Office Action. Accordingly, Applicants respectfully request reconsideration and withdrawal of each of the rejections, as well as an indication of the allowability of each of the pending claims.
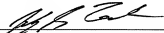
Any changes to the claims in this response, which have not been specifically noted to overcome a rejection based upon the cited art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

The Examiner is invited to contact the undersigned attorney at the telephone number listed below if such a call would in any way facilitate allowance of this application.

The Commissioner is hereby authorized to charge any fees, which may be required, or credit any overpayment, to Deposit Account Number 50-2469.

Respectfully submitted,

_2-25-2009_
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